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# THE PASSING OF THE PRESSURE TOUCH

By WESLEY WEYMAN

TO question the efficacy of the pressure touch as a means of melodic expression, is to commit an act of iconoclasm hardly to be equalled in the whole range of pianoforte technique. Pressure has been the fetish of half a century in the art of tone production. No word has been used so constantly to describe melody playing, or to guide and stimulate the student to his best effort in that direction. Trite comparisons have been drawn upon, such as pressing the juice from ripe fruit; even a tremolo of the finger, a legitimate device in playing stringed instruments, has been advocated and not infrequently exhibited on the concert stage. But whatever the outward manifestation, it was always the pressure that was the basis of the principle. It is interesting and important to investigate the historical evolution of a custom so universal, and to study its advantages and its defects.

Four or five generations ago, when our musical forebears were still playing the clavichord, they were confronted by a technical problem so vastly different from our own to-day, that only those who have played both clavichord and modern pianoforte are able to appreciate the chasm which separates the two. One fact alone, however, apart from any other difference, suffices to show the fundamental irreconcilability between the ancient and the modern technique. The dip or drop of the key was very slight, only about one-half that of the present key; and the force required to start it in motion was little more than a feather's weight—an amount scarcely perceptible to our less sensitive fingers accustomed to exerting two ounces and a half of force to set in action the modern key. In other words, we find that the clavichord has a phenomenally "easy action," and that the key goes down only half as far as on the pianoforte of to-day. This fact, so admirably adapted to the lightest agility, together with the lack of resonance in the clavichord, and the lack of singing tone and varied nuance in the harpsichord, at once explains to us the characteristic quality of the music of the early period. It was limited mostly to movements of extreme speed, and this lightning rapidity was far more easily obtainable then than it is on the modern instrument. Piano technique in the early period depended entirely on the lightest agility of the fingers, a purely

muscular force apparently emanating from the knuckles at the base of the fingers, though in fact lightly controlled by the hand behind them. Evenness was not difficult of attainment as the force exerted was so slight; and the purely percussive quality of touch was inoffensive to the ear in the low range of dynamics at one's command.

As we trace the development of music from the *clavecinistes* through Scarlatti to Mozart and Haydn, and finally to Beethoven, we find this constantly broadening musical scope accounted for by the concurrent change in the instrument from clavichord to piano and then to pianoforte. Already with Mozart we find sustained adagio and andante movements, although no one felt more keenly than he the inadequacy of his piano to express the tonal effects which he desired. For these he was obliged to turn to the strings and to the voice, while he patched out the rapidly dying tones of his piano melody with a pseudo-cantilena of roulades, repetitions and ornamental trceries. But with the advent of Beethoven we find the formation of a new melodic style, and the development of an instrument far more capable of expressing it. The romantic school was emerging from the classical period, freeing itself from shackles of artificiality and false propriety. Music followed literature in its great awakening to the fact that it was a medium of expression for human emotion and experience, and not merely a framework for the development of pyrotechnical roulades, or of involved *congetti* to be worked out according to mathematical rule. This outburst of the spirit from the throes of classical restraint required an adequate means of expression; and the older instruments with their limited resources were forced to make way for others with wider range of tone and greater dynamic power. The harpsichord served only to depict the soulless emotions of conventional figures, as did the contemporary drama through the *commedia dell'arte*; the soul-tragedy of a Beethoven—an undreamed of expression in pianistic art—required vastly larger resources. Only a pianoforte could furnish these—an instrument on which one could play *forte* as well as *piano*, with the entire dynamic range between. Yet to our modern ears these pianistic attainments would sound as slightly startling as the harmonic innovations of Beethoven and Hummel, with which they were contemporary.

With, then, the romantic period opening to music the scope of human experience, and the instrument offering a comparatively wide range of tonal possibilities, the superficiality of the old percussive finger touch was inadequate. The problem of the roulade and that of the cantilena were quite different. For the expression of a singing melody, the key required a more exact and constant control, and the

element of percussion had to be eliminated. Both these needs could be met by a gentle pressure exerted by the fingers. To press a key one must approach it comparatively gradually, take hold of it, and displace it with intention. Thus the actual touch itself, like the music it was used to express, contained a human element quite lacking in the light and superficial touch of the earlier schools.

This, it would seem, was the genesis of the pressure touch which has for many decades been the basis of all melody playing, and of all expression of tender emotion. It had indeed the advantage of a human element. It showed a vast advance in both art and instrument, in that it made the key an implement for creating varying tone-emotions. The performer was forced to take hold of the key and use it to a definite purpose, an attitude of mind which is still, indeed, the last word in modernity, the most important principle in the pianoforte technique of today.

Why, then, if pressure has so great a virtue, if it has served to transfer pianistic art from a basis of mere line to the realm of color and emotion, if it indeed forces us to the most important mental attitude toward the instrument, that of actually using the key to create definite and exact tones—why need we look farther for our melody touch?

We have seen that the clavichord touch was a purely muscular exertion of the fingers, and that the pressure touch was developed directly from it. It remained a purely muscular operation, but located itself in the palm of the hand, beyond the fingers, where the real control of the fingers is more readily felt. In its incipency, the actual cost of this muscular operation was slight; but through the following decades, the development of the pianoforte to its present orchestral proportions presented a quite different case. For the tones of enormous volume which we now require, a correspondingly enormous force must be exerted to overcome the "heavy action" of the modern pianoforte, and to produce in addition to this the desired tone. As it requires two and one-half ounces of force merely to set each key in motion, that act alone absorbs a surprising amount of strength, and yet this takes no account of the great force used to produce the actual tones we hear. The pressure is still exerted muscularly, but has been forced to transfer itself to the upper arm, as the hand alone is no longer adequate. Many teachers carefully locate the melody touch for their pupils on the under side of the upper arm, immediately below the shoulder, and then encourage them to press, press, press, until the amount of force used in playing a program is gigantic. If actually registered, the muscular energy required even in playing a Chopin Nocturne under these conditions

would astonish us, and would exhaust us by its very connotation. This expenditure, whether consciously felt or not, must necessarily react deleteriously on the nervous system of the performer.

A study of the mechanism of the piano reveals a farther disadvantage in pressure. Careful students of the instrument now realize that the tone is actually produced when the key has traversed only half its descent, and not when it hits the felt pad at the bottom. This fact requires us, if we wish to make beautiful tones, and to reproduce exactly the musical vision in our minds, to aim our force with the greatest exactness to this place in the descent of the key. This principle is almost impossible of attainment with pressure, which is bound to aim the force not merely at the pads beneath the keys, but, indeed, far beyond them. The flattened sensation at the end of one's finger bears evident witness to the suddenness with which the active force was arrested on reaching the pads—already far beyond the crucial point in tone production. Indeed, is it not safe to assert that the person who presses is necessarily prevented from aiming his forces correctly? This is painfully evident in the playing of those who press out fortissimo chords from the shoulder. Is not a really beautiful fortissimo the rarest quality that one hears in one's concert-going season? And yet a harsh, unmusical fortissimo is an unpardonable hiatus in the equipment of one who claims to be an artist, particularly as beauty of tone is the simplest of qualities to attain to, if one knows how one's instrument must be treated. Thus we find the pressure touch, while incorporating the most important mental attitude in piano-playing—that of consciously using the key to create tone—at the same time grossly transcending a physical law which is incontrovertible for every correctly produced tone—that of aiming the force exactly at the proper place, and not beyond. One aims one's foot with the utmost care and exactitude for every step. When one inadvertently steps an inch below one's expectation, one receives the same violent shock that the string receives when the force is aimed a quarter of an inch below the point of impact of the hammer with the string.

Again, our knowledge of acoustics reveals the inadequacy of pressure in producing tones of every quality such as must be at our command. We know that the difference between a bright tone and a dull one is one of harmonics or overtones. The bright or brilliant tone is produced by the over-emphasis of the smaller sections or harmonics of a string, through a sudden attack by the hammer. The dull or melodic tone is produced by a very careful and gradual displacement of the string by the hammer, in such wise as to suppress

as far as possible the upper harmonics. In other words, the emphasis of the higher overtones in a tone gives it definiteness, brightness and aggressiveness; the suppression of these overtones gives it fulness, a vague suggestiveness, and a remarkable carrying power even in *pianissimo*. This carrying power is due to the fact that the vibration naturally continues longer when the string vibrates as a regular whole, rather than as a series of small segments. Although possessing the meditative character essential to melody-playing, tone of this quality is most rarely heard. The direct reason for this is the practically universal use of the pressure touch which precludes tones of this character. To press, a finger must be curved, unyielding in the knuckles, and inelastic throughout at the moment of producing tone. This combination can only result in a sudden impact of hammer against string, with a tone of brilliant quality in which the harmonics are emphasized. Hence the pressure touch is inherently unadapted to depicting emotions of thoughtful, suggestive or vague quality on the modern pianoforte.

How are we then to get these results so rarely heard in concert and yet so essential to the artist who aims to have at his command the whole range of emotional expression? In these days an artist is indeed poorly equipped who must limit himself to a single tone color, or must distort an emotion by depicting it with a quality adapted rather for its reverse. Many pianists are as inconsistent as the painter who paints his grass pink and his sky green. What other force than pressure is at our command?

Only comparatively recently, since the pianoforte in its present orchestral proportions has required of the artist an enormous expenditure of force, have we come to realize that the arm is available not only in its active attitude of exerting muscular energy, but also in its passive attitude of relaxed weight. Here, indeed, we have at our command a gigantic power, capable in amount of meeting any of the requirements of the modern instrument for the loudest forte passages; and since the very creation of the force of weight in the arm is due to a relaxing or letting-go of the supporting muscles, the more we let go, the greater force we have. There can be no fatigue in relaxation, and we can in consequence look forward to our forte passages rather as periods of recuperation than as the exhausting and muscle-straining ordeals which the pressure touch has inevitably doomed them to be in the past. The opening pages of Tschaiikowsky's Concerto in B Flat Minor, or similar passages of chords, should react upon one only with the comfort and ease of relaxation, and with the stimulating exhilaration of a mechanism which works with no trace of opposition or strain.

Furthermore, this weight force, powerful as it is when unrestrained, is the most easily controlled of all forces at our command. It may be released in every degree from the softest pianissimo to the mightiest forte of which the instrument is capable. It can be aimed to the exact place in the descent of the key where the tone is produced, giving as a result a tone of complete fulness and carrying power. It can be caught up again instantaneously by the mere willing of the sensation of lightness so that the arm with the rapidity of thought is as light as a feather. So immediate, indeed, is the response, that the released weight need never reach the pads under the keys, although the momentum would naturally carry the key lightly down to its resting-place. Yet most important of all is the fact that weight can be used with much greater deliberation than muscular force, through a yielding of knuckles and joints. A flat finger is particularly adapted to weight in melody playing and the joints of both finger and wrist should yield at the instant of tone-production. This reluctance in the descent of the key in turn sends the hammer against the string with greatly reduced speed, and the string is set into vibration without the emphasis of the undesired harmonics. As a result, we receive the effect of a dull, full, resonant, thoughtful tone in marked contrast to the bright and energetic quality of tone which pressure is bound to produce.

Here, then, in weight of arm, we have a force which fills the deficiencies of pressure in melody playing. It cannot exhaust, as it causes no effort. Indeed its very existence is due to a lack of effort—relaxation. It can with ease be projected to the exact place necessary for reproducing in tone our musical idea. It can instantly be sustained again before reaching the felt pads beneath the keys, leaving the arm lightly poised. Finally, it opens to us an entire new range of tone color quite unattainable under the use of muscular force or pressure. By no other means can one portray the meditative, passive moods which underlie nocturnes and similar melodies, particularly those vague, suggestive qualities which are the very basis of Debussy, and the mystic school. To limit one's tone-palette to pressure and the muscular elements of touch, is to reduce poetry to puritan practicality. The artist of to-day who has not the resources of weight at his command is hopelessly old fashioned, and should confine himself to the music and instrument of one hundred years ago, for which his touch is essentially and inherently fitted.